

Food Systems and Building Back Better

Summary

Measures that have been put in place across the world to slow down the spread of coronavirus (Covid-19) have had profound effects on food and nutrition security for those furthest behind. In the short run, many have experienced increased commodity prices, decreased access to food through schools and markets, disrupted agri-food supply chains, and loss of livelihoods. It is feared that these short-term effects will have a long-term impact on poverty, intergenerational malnutrition among vulnerable people (in particular, pregnant and lactating women), agricultural productivity reduction, and increased conflicts and displacement.

How can we build back food systems better after Covid-19 so that they serve the needs of those furthest behind? To guide this decision, we employ the following concept of food systems resilience: 'Capacity over time of a food system and its units at multiple levels, to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances' (Tendall *et al.* 2015).

In applying this concept to the post-Covid-19 response, we supplement this with a political economy angle that critically examines whose resilience is and should be prioritised in humanitarian aid and donor-funded interventions. In line with international and Ireland's commitments, the aim is to build back food systems that 'leave no one behind'.

Using this framework, we analyse the current interventions that aim to tackle malnutrition and poverty in food systems. Key assessments include:

- Although malnutrition results from structural factors within the food, care and health environments, and links to factors affecting broader living conditions, current interventions by multilateral and bilateral donor-funded projects focus on individual-based and medical solutions and do not address structural constraints on better nutrition. The same structural factors apply both to disease and food vulnerability.

- Similarly, strategies to reduce poverty tend to focus on individual behavioural change based on knowledge dissemination but fall short in addressing systemic issues of production resource access by poor and marginalised agri-food producers and workers, as well as limiting resistance to plant and animal disease.
- Interventions are heavily focused on staple grains at national and international levels. This in turn limits the diversity of crops and agri-food commodities produced, and therefore people's diets, and can exacerbate environmental problems.
- Limited focus is given to investing in local innovation systems and upgrading domestic value chains to provide market conditions that benefit domestic enterprises, provide fair and safe working conditions, and supply safe and high-quality products to domestic consumers.
- Sociocultural, economic, and political interests among powerful actors still dominate global approaches, leaving poor and marginalised people furthest behind. These power imbalances need to be spelled out and addressed in order to build food systems that are both equitable and resilient.

Objectives

This positioning paper provides an analysis of the underlying factors that have led to food systems volatility in an effort to slow down the spread of Covid-19 and mitigate impacts on food security and nutrition. Our analysis focuses on those furthest behind

in low- and middle-income countries (LMICs). We discuss underlying equity issues that contribute to inequality in food security and nutrition outcomes, and suggest ways to build food systems back better to tackle such inequity in the medium to long term.

The effect of Covid-19 and other public health shocks on food systems

More than 820 million people were living with hunger and food insecurity prior to Covid-19 (FAO *et al.* 2019). These people – and millions more who have become impoverished during



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the pandemic – are at high risk of long-term food insecurity and malnutrition (UN 2020a). The current crisis in food systems is not one of falling food availability, at least in the short run (Thurlow 2020), but rather one of limited food access for the world's poorest and most vulnerable people as livelihoods are disrupted in order to slow the spread of infection (Tiensin, Kalibata and Cole 2020). In this section, we outline the implications of measures taken to curtail the spread of Covid-19 on food and nutrition security in the short and long run.

Short-term effects

Short-term effects of Covid-19 are documented on both the demand and supply sides of the food systems in LMICs. Consumers face food price inflation because

of temporary food shortages and increased demand. There have been reports of hoarding food and household items leading to price spikes of certain goods (FAO 2020a; Tiensin *et al.* 2020). An analysis of 136 countries indicates that prices of common food items – such as bananas, tomatoes, onions, eggs, bread and rice – have increased in 118 countries, ranging from less than 2 per cent in Bangladesh and Nigeria to 23.5 per cent in Rwanda (Nordhagen 2020).

This experience is similar to the 2013–16 West Africa Ebola crisis where rice and cassava prices went up by 30 per cent and 150 per cent in the region, respectively (FAO 2020a). The effect of increased food prices may be made worse by a fall in remittances. For 2020, the World Bank predicts a 20 per cent fall in global remittances (World Bank 2020). The International Labour Organization (ILO) estimates an alarming 81 per cent decline of earnings in the African informal sector (ILO 2020), severely affecting consumers' ability to afford food.

As of April 2020, 192 countries across the world had closed schools in an effort to slow down the transmission of coronavirus (WFP 2020). As a result, access to school meals has been restricted for 368 million children, some of whom rely on school meals for regular intake of healthy and nutritious food (FAO 2020a). Logistical and financial challenges might prevent school meal providers from supplying food as agreed prior to Covid-19. In cases where school meals are provided, schools may become infection hotspots as appropriate social distancing and hygiene measures are impossible (*ibid.*). This may disincentivise parents from sending children to school, affecting their nutrition as well as hampering education opportunities.

On the supply side, despite food supply chains being spared from lockdown measures, food systems in LMICs are suffering from a decline in output. Rapid country studies show that in Nigeria and Rwanda agri-food gross domestic product (GDP) decreased by 18 per cent and 27 per cent following periods



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of lockdown measures lasting five and six weeks, respectively (Thurlow 2020). The rapid decline has been due partly to the closure of hotels, restaurants, and bars; but, more importantly, because of falling consumer income (including from remittances) and purchasing power. The rapid country studies show that while non-poor urban households in these countries have experienced a 41 per cent income decline, the poorest quantile is experiencing a 23 per cent income decline (Thurlow 2020). Such an income shock will be more devastating for the poorest households across Africa, which have limited savings and assets to survive the economic contraction from Covid-19.

Closing down popular retail markets means that many small-scale retailers lose outlets for their businesses, while consumers are unable to access fresh produce (FAO 2020a). In some countries, the policy response to Covid-19 has disadvantaged informal retailers (Battersby 2020), many of whom are women (Kawarazuka, Béné and Prain *et al.* 2018; Skinner 2016). Needless to say, this affects not only the retailers themselves but also value chain actors downstream; for example, traders, processors and, ultimately, farmers.

Also, where producers rely on export markets for their fresh produce, disrupted international trade has led to commodity

Facilitating the agricultural commodity trade: India

To help facilitate the agricultural commodity trade during lockdown, the National Informatics Centre in India has launched a mobile app in collaboration with the Ministry of Agriculture and Farmers Welfare (*The Financial Express* 2020). This app allows farmers and traders to identify transport facilities to supply farm produce within and beyond Indian states. The app is expected to minimise waste, particularly of perishable items, and allow value chain stakeholders to negotiate better product prices.

price crashes, significantly decreasing farmers' income (*The Economist* 2020). Because perishable vegetables and fruits – in other words, healthy food items – do not reach consumers effectively, Covid-19-related lockdowns can lead to greater consumption of processed unhealthy foods (WHO 2020). This, combined with reduced physical activity, can exacerbate obesity and diabetes.

Food waste is another concern. Perishable items are more vulnerable to transportation restrictions and supply chain disruption than grains (FAO 2020a). Strict controls on transportation mean that nutritious food items do not reach consumers effectively. Similarly, sudden closures of food outlets such as hotels and restaurants as well as corporate consumers can lead to food waste (*ibid.*). Because supply chains are highly tailored to particular outlets, re-packaging of food items



As of April 2020, one estimate found that African countries were unable to import up to 39 per cent of their imported calories.

Transforming food systems? China

In China, an innovative multi-stakeholder response has enabled the use of online channels for commodity exchange through e-commerce platforms (Fei and Ni 2020). The government is now considering further investment in platforms that farmers and wholesalers are becoming accustomed to as a result of Covid-19-related lockdown measures. Online platforms have also helped link idle labourers to potential employers in agri-food value chains. Moreover, farm technical services have been offered online through social media as well as by telephone.

is often infeasible, leaving much produce to be wasted (*The Economist* 2020).

Shrinking international trade and foreign direct investment (FDI) may contribute to short-term food shortages and price spikes of key commodities. Some national governments have placed export bans on key food items, such as Cambodian and Vietnamese government bans on rice exports (Laborde, Mamun and Parent 2020). As of 28 April 2020, one estimate found that African countries were unable to import up to 39 per cent of their imported calories (*ibid.*). The overall impact of trade restrictions on food security and access depends on countries' reliance on food imports to feed their people and where trade restrictions are imposed.

Conflict-affected areas are particularly vulnerable to both direct and indirect effects of Covid-19. Health systems in conflict-affected areas have limited capacity to withstand the shocks of Covid-19. International health assistance may be blocked by local militias, as was the case during the Ebola outbreak in the Democratic Republic of Congo (DRC) in 2019 (International Crisis Group 2020). Likewise, food aid supplied by the international community is being disrupted to areas affected by, for instance, the Islamic State group (ISIS) in Iraq, threatening the food security of refugees

and internally displaced people (IDPs), who were dependent on foreign assistance prior to Covid-19 (Karasapan 2020a). The negative effects of the pandemic on health care and food access will be borne disproportionately by women, who make up the majority of IDPs (International Crisis Group 2020).

Long-term effects

There is a growing concern that the economic shock from lockdown measures will have a lasting impact on poverty and nutrition. In Nigeria and Rwanda, for instance, Thurlow (2020) estimates that national poverty rates will increase by 15 and 27 percentage points, respectively. Overall, the number of hungry and food-insecure people could double due to livelihood and income loss, and food price inflation¹ from Covid-19-related measures (*The Economist* 2020). This includes remittances lost from disturbances in domestic, regional and international destinations, and shrinking FDI leading to job losses (Seric and Hauge 2020).

Poorer households rely on remittances from domestic migrants more often than richer households, highlighting the importance of internal migration for particularly vulnerable people (Adhikari 2020). The longer the lockdown, the higher the risk of people losing income and being forced to consume or sell agricultural assets such as livestock and seeds for the next cycle of cultivation (FAO 2020b). This has long-term consequences for poverty, access to nutritious food and, therefore, the overall health of millions of people.

Decreased access to healthy and nutritious food for key groups, such as pregnant and lactating women, can lead to serious nutritional deficiencies with long-term implications on child health (Transform Nutrition West Africa 2020). There are also concerns that obesity and overweight will increase in the long run due to restrictions on the ability to exercise or otherwise



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undertake normal levels of physical activity. Also, processed fast foods are more easily accessible than healthy fresh produce (*ibid.*); and there is an established link with poorer living situations and poor diets and nutrition outcomes over the long term.

Long-term agricultural productivity is also at risk. Government funding is being reallocated from 'non-essential' service provision to efforts to tackle the spread of the coronavirus (FAO 2020a). As a result, agricultural extension services that farmers rely on might be temporarily or permanently closed. Small-scale, resource-poor farmers who keep non-cash crops or livestock tend to rely on public extension services more than medium- and large-scale farmers who might have better access to private sector service providers (Muyanga and Jayne 2008). This will have a significant impact on agricultural technology transfer in the future and productivity in the long run. In turn, this could affect the livelihoods and income of marginalised farmers and their long-term health and nutrition status.

Labour shortages during the SARS and Ebola outbreaks, in 2002–04 and 2013–16 respectively, led to severe disruption in the harvesting and transportation of agricultural produce (FAO 2020a). As a result, farmers were unable to sell produce at all, or sold it at a loss, affecting their long-term income. In addition, transportation restrictions led to input price increases (*ibid.*). Because farm inputs may

¹ However, the long-term effect of Covid-19 on inflation is unclear. A preliminary analysis by the United Nations shows that LMICs are experiencing higher rates of inflation than high-income countries. In particular, those that experienced high inflation prior to Covid-19 continue to show high inflation rates (e.g. Argentina, Venezuela and Zimbabwe) (UN 2020b).

be imported, supplies of seed, animal feed, fuel, machinery, and chemical inputs can be hampered (*The Economist* 2020). Market closures and disrupted food supply chains contributed to an increase in commodity prices and ultimately hunger (FAO 2020b).

It is feared Covid-19 will make situations worse for communities that have been struck by conflicts. In Yemen, for instance, over 25 years of war have led to the collapse of domestic agricultural supply chains. The country relies on imports to supply 90 per cent of its food (Alles 2017). Weak infrastructure and inefficient institutions hamper trade, resulting in high food prices. Protracted conflict also means that people's livelihoods have been destroyed (Tandon and Vishwanath 2020), thus their purchasing power is inadequate to afford healthy and nutritious meals. Covid-19-related disruption on food imports will likely make the situation worse for the 24 million people who currently require humanitarian assistance (Karasapan 2020a). In other conflict-affected countries such as Egypt, Lebanon and Libya, food imports have been restricted due to Covid-19, affecting 31 per cent, 39 per cent and 36 per cent of calorie intake from food imports, respectively (Laborde *et al.* 2020).

Countries affected by environmental disasters prior to the Covid-19 outbreak are also vulnerable. For instance, in Ethiopia, Kenya, and Somalia almost 12 million people were affected by failed harvests due to severe droughts and outbreaks of desert locusts (FAO 2020b). This severe disruption to livelihoods and food access means that pastoralist

communities will be forced to move to other areas in search of grazing for their animals. This may, in turn, cause conflict between pastoralists and local residents, leading to internal displacement and associated poverty and food insecurity (*ibid.*). Similarly, in Burkina Faso, decreased food production has led to conflicts and internal displacement (Transform Nutrition West Africa 2020).

Analytical framework

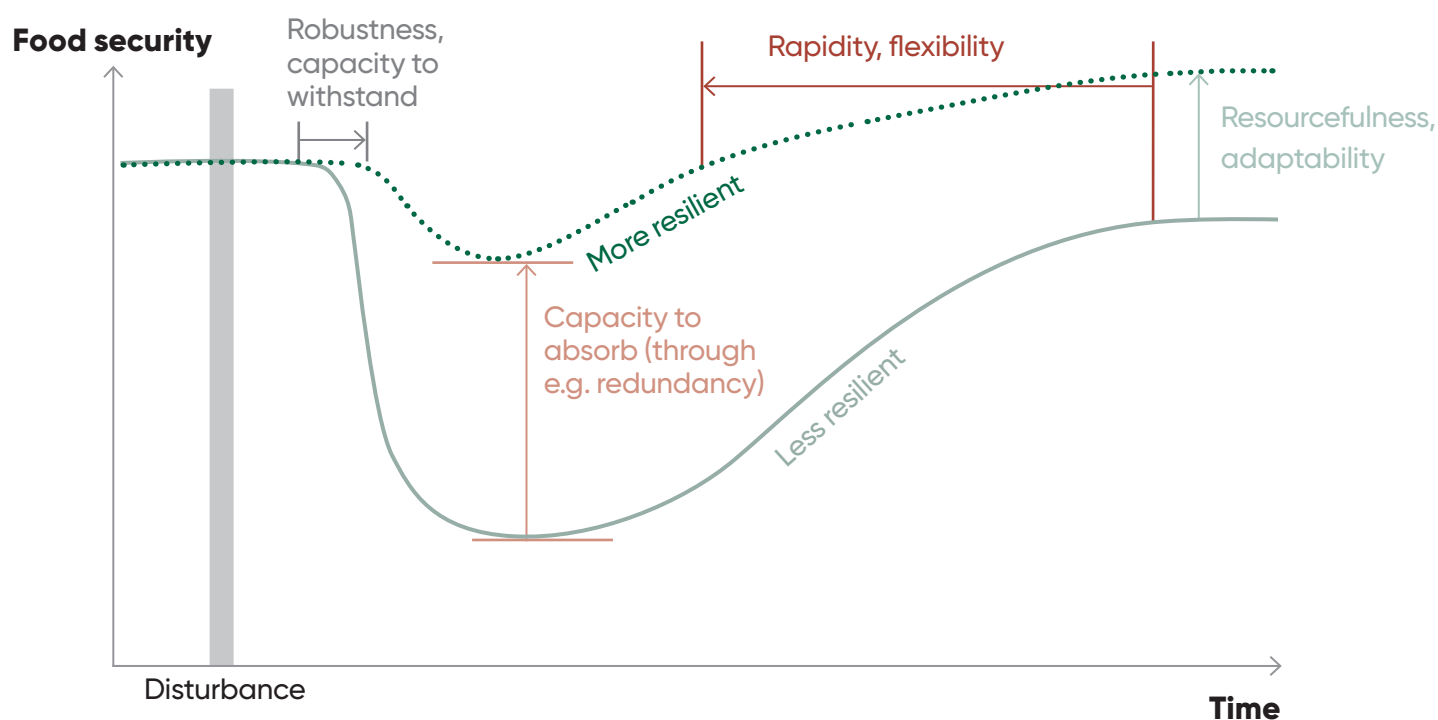
To analyse the systemic issues that amplify the impact of the Covid-19 response on consumers and those employed in food systems, we employ the analytical framework of food systems **resilience** and incorporate the work on **political analysis** of food system change (Leach *et al.* 2020). While many have applied the resilience concept to different segments of food systems (Speranza, Wiesann and Rist 2014; Tyler *et al.* 2013), Tendall *et al.* (2015: 19) introduce the following holistic definition of food systems as a whole: 'Capacity over time of a food system and its units at multiple levels, to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances'. This speaks to the four dimensions of food security (FAO 1996): availability, access, utilisation, and stability.

Tendall *et al.* (2015) demonstrate that food security depends on four characteristics of food systems to be resilient: (1) robustness and capacity to withstand shocks; (2) capacity to absorb shocks; (3) rapidity and flexibility to recover from shocks; and (4) resourcefulness and adaptability to recover from shocks (see Figure 1). Resilience is a degree, rather than a dichotomous state. Therefore, in Figure 1 a less resilient system is expected to experience more effects from any disturbance and possess less capacity to reinstate the pre-shock state than a more resilient system, indicating that it needs longer to recover to the original state. A resilient system with transformative capacity (Béné *et al.* 2012) may achieve a food security level higher than the original state.



Covid-19-related disruption on food imports will likely make the situation worse for the 24 million people who currently require humanitarian assistance.

Figure 1 Food system resilience



Source: Tendall *et al.* (2015). © Elsevier 2015. Reprinted with permission.

How do we know whether a particular food system, or a component of a food system, is resilient and demonstrates the four characteristics? Firstly, resilience needs to manifest at multiple levels. For instance, Bullock *et al.* (2017) refer to the scales at global/regional, farm and field levels, while Tyler *et al.* (2013) discuss resilience at system, agent, and institution levels. Within each level, the emphasis is on retaining diversity. At field/plot level, a variety of crop cultivars or animal breeds with distinct genetic attributes can be kept, improving resistance to external shocks (Urruty *et al.* 2016). Similarly, crops and livestock can be rotated in an integrated system to increase the diversity of species kept on a farm (Bullock *et al.* 2017). Landscape management and seeking for diversity within a region can also enhance the resilience of the production system in a local area (Urruty *et al.* 2016).

In addition to diversity, fostering the adaptive capacity of the system is critical. At the farm level, this may mean keeping animal or crop breeds that are able to adapt to the changing environment (*ibid.*). At a broader spatial scale – in other words,

global/regional (Bullock *et al.* 2017) or system level (Tyler *et al.* 2013) – adaptive capacity translates to the extent to which actors can access information and knowledge, build necessary capacity, self-organise to cope with shocks and influence policymaking to increase resilience (FAO 2015; Speranza *et al.* 2014).

Adaptive capacity is also closely linked to redundancy in the system (Speranza *et al.* 2014), which may be perceived as inefficiency (Cabell and Oelofse 2012). However, redundancy applies not only to physical capital, but also to capital in human, natural, financial, and social terms that allows individuals and groups to respond to shocks (Speranza *et al.* 2014). In other words, fostering knowledge and information access by strengthening social networks, adopting climate-resilient production systems, and improving income and nutrition all contribute to increasing redundancy.

Another recurring theme is the ability to learn from previous shocks (Cabell and Oelofse 2012; FAO 2015). The way in which a particular system is organised today depends on its past experiences of responding to

shocks (Cabell and Oelofse 2012). Ideally, such shocks remain small and frequent so that they do not push a system beyond its limit (FAO 2015). However, even in fragile contexts such as Sierra Leone, evidence suggests that the experience of a past epidemic, such as Ebola, informed an effective response to Covid-19 (Kamara 2020). 'Careful exposure' to small and recurring shocks can help build a resilient system where investment can be made to cope with similar disturbances in the future (Cabell and Oelofse 2012).

While the above framework is helpful in analysing the resilience of food systems, it leaves out critical aspects of political economy that determine whose resilience is prioritised in humanitarian aid and donor-funded interventions. Without explicit consideration of those furthest behind, the resilience framework risks being anti-poor (Béné *et al.* 2012). For instance, landless labourers may be seen as a reserve of human capital, ready to migrate to where labour is needed. This contributes to creating redundancy but is bad for equity.

Learning from Ebola: Sierra Leone

Sierra Leone, one of the countries that was worst hit by Ebola in the 2013–16 outbreak, adapted its strategies in tackling Covid-19 based on its experience of Ebola (C40 2020). Public health measures such as handwashing and physical distancing were put in place alongside support to encourage behavioural change. These include responses related to food security, such as supporting urban farming and food deliveries to provide food for vulnerable people in informal settlements. The strategy also addressed structural issues such as access to water and electricity. Such efforts were realised through multisectoral collaboration and included community leaders who residents trusted.



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Therefore, we incorporate this dimension into the framework, drawing from the work by Stirling (2009), Stirling *et al.* (2010) and Leach *et al.* (2020). While multiple pathways exist to achieve a goal – for example, food system resilience – certain pathways are highlighted and silenced as a result of power relationships that determine the discourses and politics of knowledge (*ibid.*). In understanding whose voices and norms are celebrated and silenced, Leach *et al.* (2020) suggest paying attention to 'the 4Ds'.

4Ds for food

1. What **directions** are different pathways headed in? What goals, values, interests, and power relations are determining particular pathways?
2. Is there a sufficient **diversity** of pathways? Are these diverse enough to prevent lock-in, build resilience in the face of uncertainty, and respond to a variety of contexts and values?
3. What are the implications for **distribution**? Who gains and who loses from current or proposed pathways?
4. What are the implications for **democracy**, which encompasses equity of opportunity for voice and inclusion, and processes that enable and enhance this?

Source: Leach *et al.* (2020).

In the next section, we evaluate these 4Ds within the food systems resilience framework by Tendall *et al.* (2015), analyse underlying causes

of malnutrition and food insecurity, and highlight pathways and approaches marginalised in the current effort to tackle these issues.

Food systems resilience and political economy analysis

Tackling malnutrition in all its forms to withstand shocks and increase resourcefulness

Covid-19-related shocks have highlighted the vulnerability of food systems in many LMICs. A population that is chronically malnourished has little capacity to withstand and recover from shocks. Today, while struggles with undernutrition remain across LMICs, many are grappling with the double burden of malnutrition (DBM hereafter), where undernutrition (for example, wasting, stunting, and micronutrient deficiencies) co-exists with overweight, obesity, and diet-related non-communicable diseases (Black *et al.* 2016). According to Popkin, Corvalan and Grummer-Strawn (2020), a total of 93 LMICs currently bear the burden of DBM. For instance, in the 2010s, Malawi, Rwanda, Tanzania and Uganda all experienced DBM, with more than 30 per cent of adults overweight. Malnutrition can be perpetuated across generations: obesity in pregnant and lactating women can negatively affect the early growth and development of their children, particularly when the mothers were undernourished in their early life (Wells *et al.* 2020).

To employ the concepts of resilience and the 4D framework across the food system, we refer to work by the High Level Panel of Experts (HLPE 2020) (see Figure 2) highlighting

that food security depends on six dimensions: availability, access, utilisation, stability, agency and sustainability. Beyond the relationship between systems that support food production, and people's immediate food environment and consumption habits, the panel's work draws attention to neglected factors in the middle segments of value chains, such as transportation, processing, and retailing (Béné *et al.* 2019), as well as broader social, economic, and political drivers such as levels of natural resource degradation, innovation, and social norms. Such an understanding needs to be coupled with frameworks focusing on malnutrition (rather than broader food system issues) (e.g. UNICEF 2019), which show the interrelationship between food, care and broader health and sanitation environments in determining nutritional status.

In relation to Covid-19, work on dietary equity has shown how healthy eating is influenced by factors related not only to food (e.g. food supply and preferences) but also care, health and sanitation environments. For instance, unemployment and precarious employment make it more difficult for individuals to spend time on shopping, cooking and sharing food with their family members (Friel *et al.* 2017). Likewise, vulnerable and marginalised people are at higher risk of food-related illnesses partly because their living environments are influenced by their access to financial, human, physical and social capital (Black *et al.* 2016). Basic water, sanitation and hygiene (WASH) is often lacking in their homes (Prüss-Ustün *et al.* 2014), making food cooked at home unsafe. This



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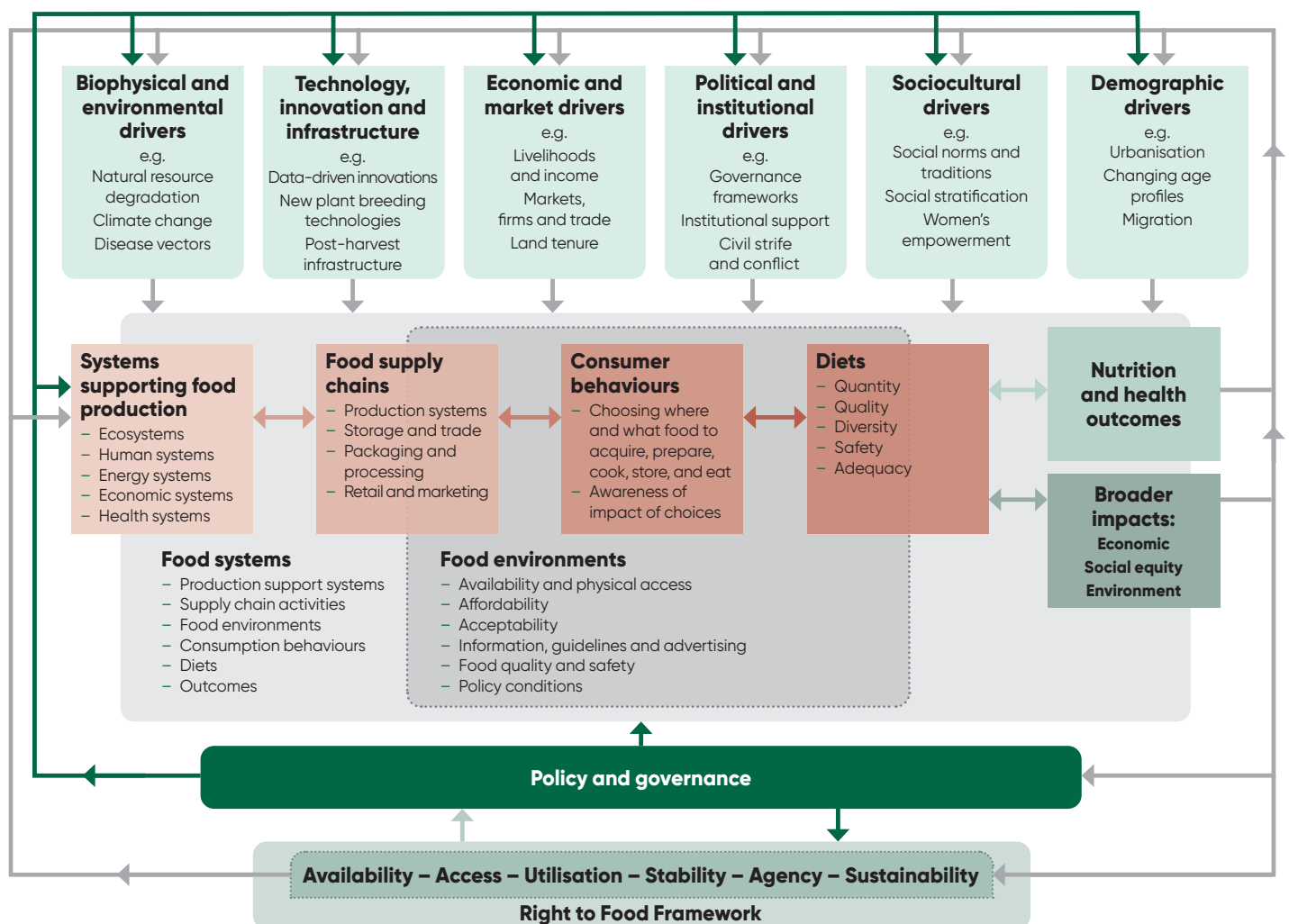
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can lead to diarrhoea or other gut conditions, which weaken the body's immune system and make it harder to absorb the right amount of nutrients in the long run (Havelaar *et al.* 2015). These social and structural determinants of healthy eating and of wider nutritional status are key to improving individuals' nutrition status.

Despite the importance of these structural

factors behind malnutrition, current interventions by multilateral and bilateral donor-funded projects often focus on educating and informing individuals while falling short in tackling these systemic causes (Friel *et al.* 2015). In Leach *et al.* (2020)'s terminology, **diversity** of intervention options is compromised where individuals' focus on food-related interventions dominates. This trend may be due to underlying power relationships that influence both consumers and producers across food systems (Independent Expert Group of the Global Nutrition Report 2020). Powerful actors within food systems – agribusinesses, multinational food corporations, and international donors and policymakers – influence the ways in which governments and international agencies fund agricultural research and development (R&D), and intervene in food systems. This influences how food systems are structured in individual countries, and how individual families and people select what, when and how much they eat (*ibid.*).

Figure 2 Determinants of healthy eating



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For example, at the global level, agricultural production and R&D are often pointed in the **direction** of increasing productivity of staple grains (Pingali 2015). This focus on staple commodities is evident among, for instance, CGIAR (formerly the Consultative Group on International Agricultural Research) centres – a major international player in agricultural research (Pingali 2015) – that allocate half of CGIAR's funding to staple crops (Hawkes *et al.* 2020).

At national level, Malawi is an example of a country where agricultural policies heavily concentrate on maize because of its perceived importance for national food security and political stability (Chirwa and Chinsinga 2015). This, in turn, skews government policies and donor-funded interventions that farmers receive towards staple grains, closing down the pathway to **diversity** in people's diets as well as livelihoods (Hawkes *et al.* 2020). It may also increase the availability of oily processed food and animal products (*ibid.*), and exacerbate environmental problems caused by unsustainable production of grains (Karasapan 2020b).

People's calorie intake from non-staples has increased over time, highlighting the growing importance of non-staple commodities (Independent Expert Group of the Global Nutrition Report 2020). Livestock

and aquaculture income can be significantly higher than from grains, providing greater potential for poverty alleviation (Belton, Filipinski and Hu 2017). Thus, a shift away from grains would help diversify production systems and economic activities, increasing the resilience of food systems overall.

To ensure food systems support the nutritional status of the poorest members of our societies, in relation to **distribution** and equity of healthy eating we need to go beyond targeting individual knowledge and attitudes to improve people's food choices. For instance, the value chain structures that create winners and losers – losers often being among the poorest people in the world – perpetuate precarious working conditions (Barrientos, Gereffi and Rossi 2011). While international trade can help diversify food sources and thereby contribute to resilience (Marlow and de Souza 2020), interest in accelerating economic development and GDP growth favours large-scale businesses and FDI (Thow and McGrady 2014), often marginalising small- and medium-sized businesses across LMICs.

With limited enforcement of national regulations that aim at improving labour conditions and/or public health, for-profit actors would pursue business interest at a cost of the livelihoods and wellbeing of vulnerable people (Ebata *et al.* 2019). Limited market competition gives oligopolists lobbying power over national governments and can lead to worsening nutrition outcomes (Thow and McGrady 2014). Negative effects of increasing industry influence can be mitigated by governance that develops transparent and accountable value chains – thereby improving **democracy** – and pressure from consumers in both domestic and international markets (Dallas, Ponte and Sturgeon 2017; Lema, Rabellotti and Gehl Sampath 2018). A careful review of FDI by national governments could help build back value chains that better suit the needs of marginalised labourers after Covid-19 (Seric and Hauge 2020).



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Fostering adaptive capacity and resource access by addressing power relationships

A key aspect of resilient systems is effective communication and availability of opportunities for learning. Indeed, the quality of information and users' trust in extension workers is critical in improving food security for vulnerable groups of people, such as female-headed households in Kenya (Kassie, Ndiritu, and Shiferaw 2012). However, these very groups may be prevented from accessing high-quality and timely extension services due to remoteness and prejudice. For instance, female farmers in Malawi are regarded as illiterate and ignorant by extension workers, hampering their access to information and knowledge (Mudege *et al.* 2017).

Similarly, Fulani pastoralists in rural Nigeria were cut off from timely veterinary services because of remoteness, and persistent miscommunication and misunderstanding between veterinary extension workers and the pastoralists (Okello *et al.* 2014). Engaging these marginalised actors in a dialogue with decision makers could foster a **diversity** of perspectives that contributes to designing pathways that build resilient and equitable food systems. This was evident in Sierra Leone, where experience of dealing with Ebola motivated early engagement of local leaders and cross-party dialogue in the initial Covid-19 response (Kamara 2020).

Another challenge for poor and marginalised people is the lack of access to – or in other words, unequal **distribution** of – production resources such as land (Fischer, Gramzow and Laizer 2017; Pritchard *et al.* 2018)



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and low-interest credit (Ebata *et al.* 2020). In Myanmar, for instance, farmers can access low-interest government loans only if they possess a title to rice fields (Ebata *et al.* 2020). As most farmers do not own the fields they cultivate and/or earn income from non-rice crops or keeping animals, they are forced to turn to private high-interest loan providers. This depletes their financial capital and, as a result, traps them in persistent poverty.

Limited access to assets is consistently shown to hamper the adoption of production technologies that are profitable and/or resilient to climate change (Cavanagh *et al.* 2017; Deressa, Hassan and Ringler 2011; Serflippi, Carter and Guirking 2019). Lifting such systemic barriers is largely absent from efforts to increase investment in agricultural technology that allows poor people to take steps to adapt to climate change and improve farm productivity. This will require a dialogue with policymakers to facilitate smallholder access to production inputs.

Fostering local innovation systems is another critical way of increasing learning opportunities for local businesses. Insertion into global value chains has the potential to improve the GDP of LMICs (Lee, Szapiro and Mao 2018). However, local innovation capacity crucially determines the **distribution** of benefits, such as whether businesses in LMICs can take advantage of participating in global value chains that often impose higher quality and production standards than domestic markets (Lema *et al.* 2018). Therefore, it is critical to invest in R&D in, for instance, sustainable production methods, product quality and safety improvements, and processing of primary agricultural commodities. Public sector efforts to improve national innovation systems should align with private sector needs (Gehl Sampath and Vallejo 2018).

A multi-stakeholder innovation platform, such as the East Africa Dairy Development programme in Kenya, is one example of how public and private sector actors can maintain a dialogue to identify challenges and opportunities in current agricultural innovation systems (Kilelu, Klerkx and Leeuwis 2013). In promoting international trade,

welfare implications for participants in global value chains need to be carefully monitored. In some cases, female casual workers can increase their income by working for an export farm (Maertens and Swinnen 2012). However, labour conditions, occupational safety and labour rights need to be carefully evaluated to achieve inclusive growth (ILO 2017). Government regulations, consumer pressures for fair working conditions, and effective accountability mechanisms have been demonstrated to foster global and local governance that ensures **democracy** in value chain development (Dallas *et al.* 2017).

Finally, international agencies and donors are powerful in setting **directions** for food system development in LMICs. In this political process, the voices of poor people remain silenced and marginalised in policymaking and implementation. For instance, a political

economy analysis of the response to the avian influenza outbreak in 2008 indicates that common policy responses to public health crises may disproportionately affect poor members of our societies. In China, policymakers were quick to claim that the avian influenza outbreak was driven by small-scale poultry farmers and traders, despite the science being inconclusive about the cause (Scoones and Forster 2008). The standard advice from international organisations such as the Food and Agriculture Organization and the World Organisation for Animal Health (OIE) to carry out mass culling of animals disproportionately affects poor and marginalised actors in food systems, while large-scale producers have assets to survive crises (Pongcharoensuk *et al.* 2012). These power imbalances must be carefully tackled to ensure food systems leave no one behind.

Conclusions

Responses to stop the spread of Covid-19 have exposed much of the vulnerability in food systems – both on the consumption and production sides – that had been pertinent prior to the epidemic. Strikingly, these measures affect poor and marginalised people more severely than those who are privileged. How can Ireland and other donors help food systems in LMICs build back better from the Covid-19 crisis?

Applying a food system resilience concept through a political economy lens, we suggest three ways to build back resilient food systems that work for those furthest behind:

- First, future interventions need to target structural issues that limit people's agency in accessing nutritious and diverse food and production capital – not only physical, but social and human – that helps them move out of persistent poverty and tackle climate change.
- Second, investment needs to be made to strengthen local innovation systems and institutions, both formal and informal, to

create a market environment that benefits domestic (small and medium) enterprises and agri-food supply chain workers without jeopardising the environment.

- Third, interventions need to be informed by a diverse set of opinions that include the voices of the furthest behind. Policy responses based on fair representation of their voices will help build pathways to 'a better world' as envisioned by Ireland.



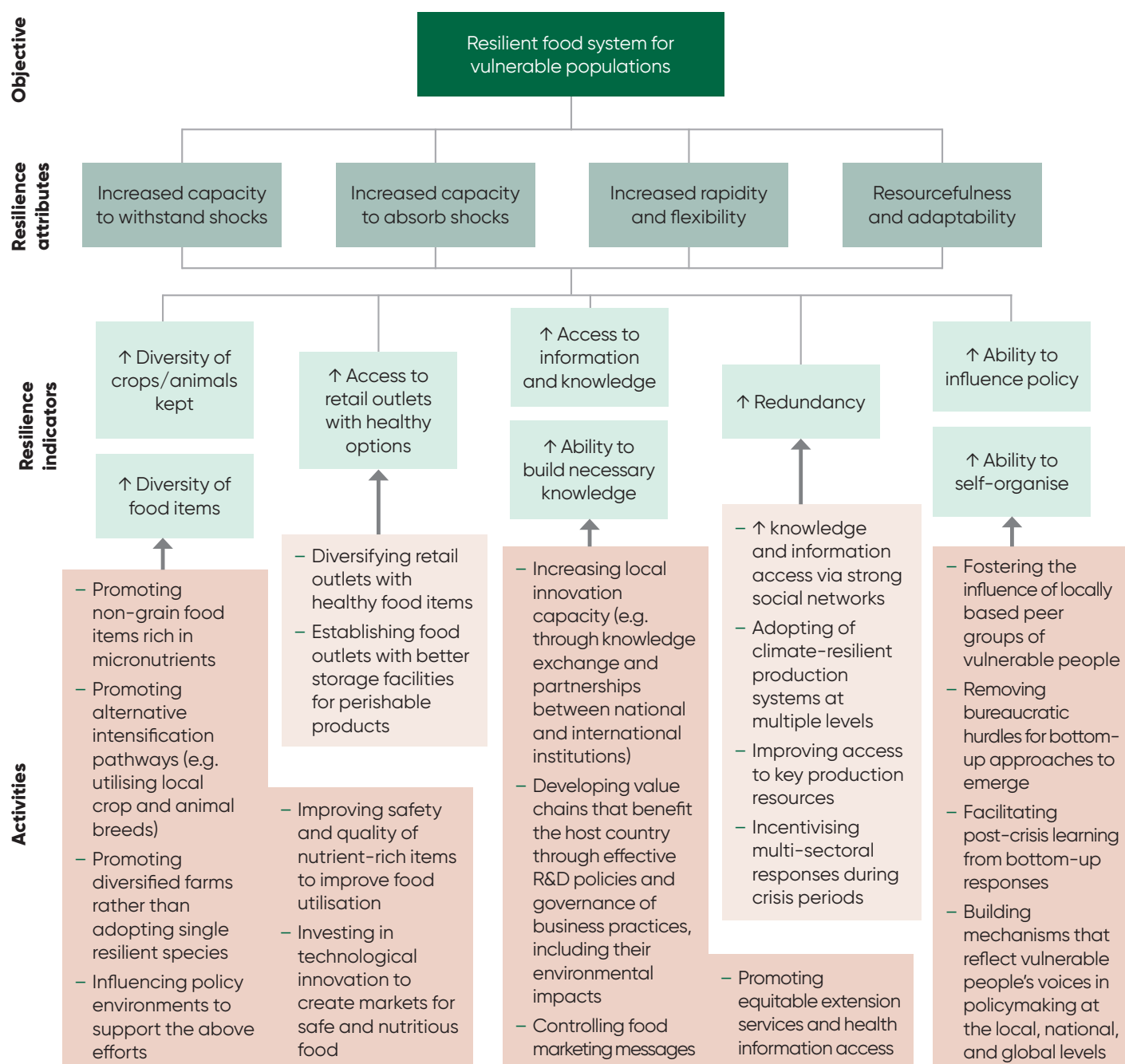
Future interventions need to target structural issues that limit people's agency in accessing nutritious and diverse food and production capital – not only physical, but social and human – that helps them move out of persistent poverty and tackle climate change.

Annexe A: Applying the resilience framework to assess and design programmatic activities

Here we suggest how to apply the framework discussed above to analyse Ireland's activities. The diagram indicates how individual activities can be linked to the overarching goal of increasing food systems resilience to improve food security and malnutrition among vulnerable populations.

The list of activities covered in the diagram is by no means exhaustive but is currently tailored to the activities and strategies of three of Ireland's partner countries: Kenya, Malawi, and Tanzania. For instance, under the indicator on diversity, while we reflect on the operation in Malawi to

Figure 3 An example application of the resilience framework in programme operations



Source: Authors' own.

promote non-maize crops, we suggest that there may be the possibility to encourage alternative non-maize crops in addition to legumes, roots and tubers, which are Ireland's current focus.

Likewise, the activities under knowledge access may be considered by the operation team in Kenya to address meso- and macro-level policies that enhance local innovation capacity – such as to increase public R&D spending that aligns with private sector needs in food systems; and foster both public and private sector capacity to increase the scientific knowledge base and innovation in the country, intellectual property payments and patents – to make

their value chains competitive, sustainable and socially inclusive.

Last but not least, Ireland's work in Tanzania to make young people's voices heard in vocational training is reflected in the activities to increase their ability to influence policymaking, while prompting consideration about whether more could be done at different levels – local, national, and global – to contribute to policies that affect young people. This may include, for instance, establishing continuous communication channels between youth groups and policymakers at different levels so that the challenges young people face are reflected in policies.

Annexe B: A flow chart to guide programmatic decision-making

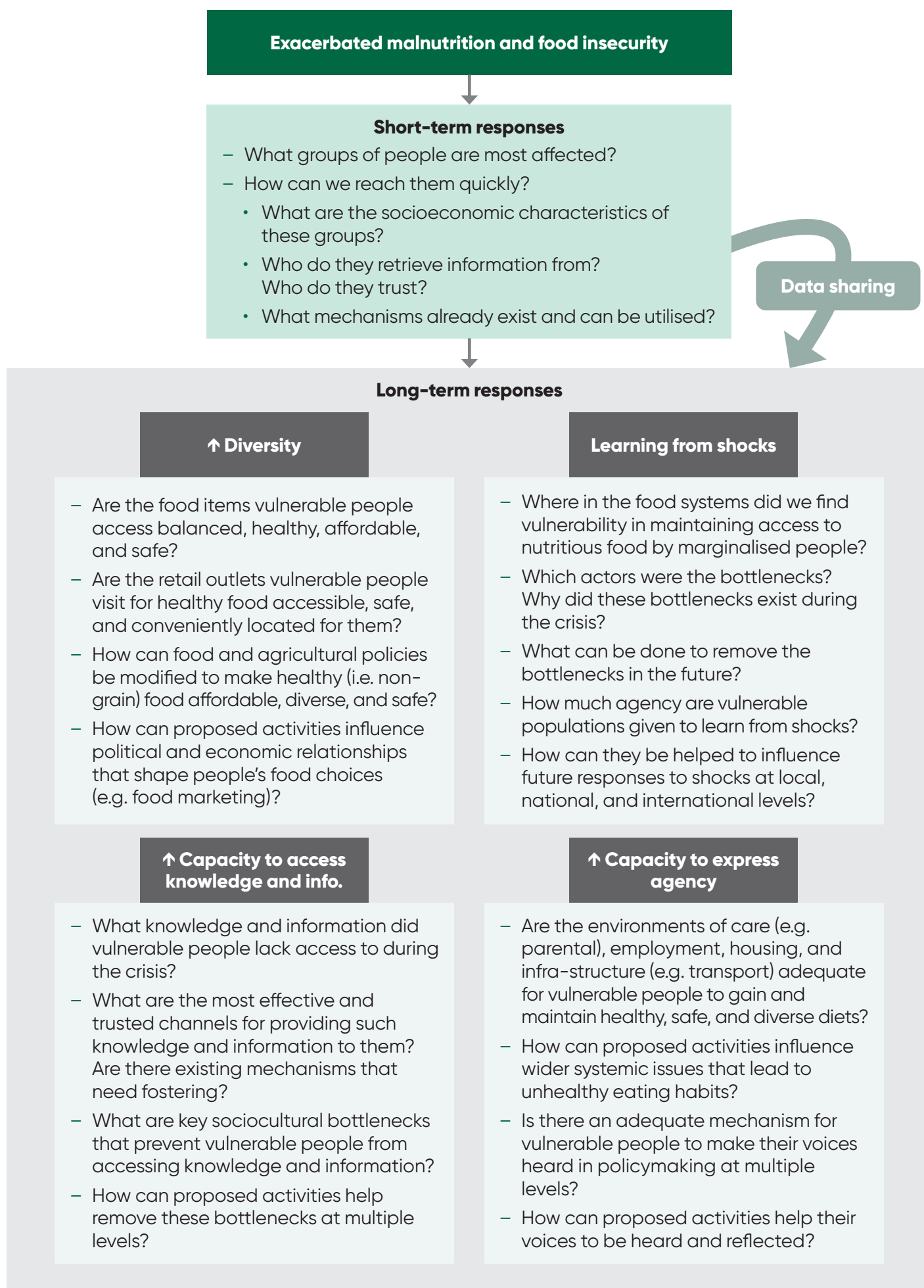
In Annexe B, we list relevant questions to be addressed in designing programmatic activities that tackle malnutrition and food insecurity, and livelihood disruption and associated poverty. We divide the inquiry into short and long term.

In the short term, agencies are asked to respond quickly to emerging needs and vulnerability, identifying who is being affected the most, in what ways and which areas need to be prioritised. In designing long-term responses, agencies are encouraged to reflect on the systemic causes behind short-

term vulnerability, as identified in the sections above.

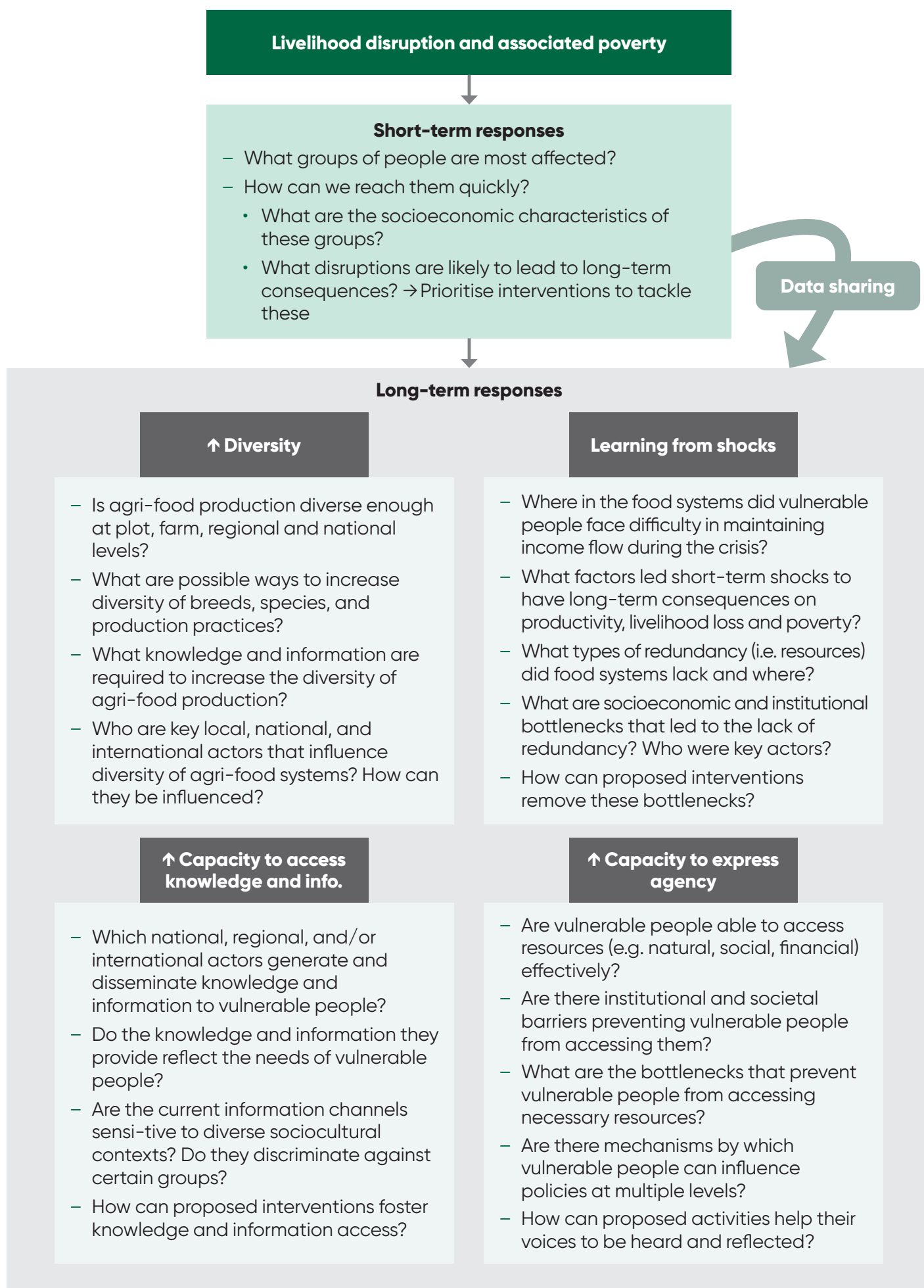
The diagrams are divided into four categories (increasing diversity, learning from shocks, increasing capacity to access knowledge and information, and increasing capacity to express agency), which correspond to the resilience indicators described in Annexe A. Addressing each question in these four separate boxes will allow agencies to design interventions that contribute to improving these indicators, and thereby build resilient food systems.

Figure 4 Malnutrition and food insecurity



Source: Authors' own.

Figure 5 Livelihoods in agri-food systems and poverty



Source: Authors' own.

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